Amendments to the Drawings:

Please replace the Figures with the attached sheet of drawings.

In the replacement sheet, the erroneous appearance of reference numeral 5 has been deleted.

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1 and 3-9 are currently being amended.

Claim 2 is requested to be canceled.

Claims 10-12 are being added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1 and 3-12 are now pending in this application.

Amendments to the Specification other than the claims are made to correct errors in the translation of the priority document. No new matter is added.

Objections to the Specification

The Office Action objected to the specification for lack of headings and a brief description of the drawings. Appropriate amendments have been made to the specification.

Objection to the Drawing

The Office Action objected to the Figures as containing the reference numeral "5" twice. An amended sheet of drawings is provided. This amended sheet removes the erroneous appearance of reference numeral "5".

Definiteness of Claims 6 and 8

The Office Action rejected claim 6 under 35 U.S.C. § 112 ¶2. Claim 6 has been amended to remove the subject matter in question. New claims 10 and 11 now specify exactly when the recited dimensional elements apply.

The Office Action also rejected claim 8 under 35 U.S.C. § 112 ¶2. Claim 8 has been amended to provide that the amorphous layer is not doped, which is a term well understood by those of skill in the art. Support for this amendment may be found at p. 6, line 11 to p. 7, line 10.

Claims 1 and 3-11, As Amended, are Patentable Over Hamacher, et al. in View of Luke, et al.

The Office Action rejected claims 1-9 over Hammacher, *et al.* in view of Luke, *et al.* The rejection is respectfully traversed.

Claim 1 has been amended to clarify the claim terms and incorporate the subject matter of claim 2.

Applicants respectfully submit that there would have been no motivation to combine Hammacher, et al. with Luke, et al. in the manner suggested by the Office. A person of ordinary skill in the art, beginning with the teachings of Hammacher, *et al.* would not have applied the teachings of Luke, *et al.* to form a structured amorphous layer.

Prior to the present invention, it was widely believed in the art that an amorphous Germanium layer acting as a substitute for a Phosphorous-doped contact should not be structured, even if the overlying metal contact layer was structured. This is because the Germanium layer acts as a passivation layer. Luke, et al. teach this at p. 590 of the cited reference, near the bottom of the right hand column:

> In fact, the sputtering parameters were identical to those used by our group in the deposition of a-Ge for Ge detector surface passivation [8]. Because of this, the a-Ge coating which was also deposited on the side of a device during formation of the a-Ge was left intact to function as a surface passivation layer.

Luke, *et al.* teach this again at the top of the right-hand column of page 593:

> As illustrated in Fig. 8, multiple electrodes can be formed on a device simply by sputtering with a-Ge followed by metal evaporation, e.g. through a shadow mask, to define the contact areas. Areas between the electrodes are automatically passivated. (emphasis added).

This knowledge was widespread in the art. For example, Luke et al. again refer to the beneficial passivation effect in an IEEE paper of 1994 ("A 140-element Ge Detector Fabricated with Amorphous Ge Blocking Contacts"), attached as exhibit 1. Near the bottom of the right-hand column of page 976, it is stated:

> The portion of the a-Ge film which was not covered with metal, i.e., the area between electrodes and the side surfaces, acts as a passivation layer.

In the reference "Protective Surface Coatings on Semiconductor Nuclear Radiation Detectors" by W.L. Hansen et al. (attached as exhibit 2), the authors state in the middle of the right hand column of page 250:

> The ability to make passivated surfaces with flat band condition on germanium nuclear radiation detectors can extend the application of these devices. An important use for this technique is in making multi-detector arrays for which case the detectors can be fabricated and tested one-by-one without concern for any ambient degradation before mounting in the final system.

A person of ordinary skill in the art would thus not have been motivated by Hammacher, Luke or the state of the art to manufacture a detector whereby the structure of the metal electrode passes through the amorphous layer, believing it to be advantageous to preserve the amorphous layer between electrodes. It was only after the inventors had made the surprising discovery of the improvements that may be had by extending the electrode structure into the substrate that such motivation was supplied.

Claims 3-11 are ultimately dependent from claim 1, and patentable for the same reasons.

Claim 12 has been added. Claim 12 is a method claim that is believed to be patentable over the prior art of record for reasons similar to those given above with respect to claim 1. Support for claim 12 may be found at p. 6, line 25 – p. 7, line 10 and Fig. 1

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date September 29, 2006

By _____

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4618
Facsimile: (202) 672-5399

Matthew A. Smith
Attorney for Applicant
Registration No. 49,003